

Scenarios and models for fostering Nature-based Solution(NbS): Learning from a multi-country project



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### Mangrove Ecosystem Services and Human wellbeing



#### **Global Distribution of Mangrove Ecosystems**



- Mangroves are largely confined to the regions between 30° North and 38° South of the equator.
- Sprawling in 112 countries coastlines of tropical and sub-tropical regions.
- Approximate area covered is between 167000 sq.km to 181000 sq.km. [1]
- The extent of mangroves in the world has decreased by 6057.45 sq.km. between 1996 and 2016.



 11 out of 70 mangrove species (16 percent) which were assessed and placed on the IUCN Red List.

 Chand Basha SK, 2016 (An Overview of Global Mangrove Distributions; Indian Journal of Geo-Marine Sciences)
The World's Mangroves 1980 – 2005 (Food and Agriculture Organization of the United Nations)

#### **Causes of Degradation of Mangrove Ecosystems**

More people are living along coasts than ever before & consequently POLLUTION runoff has risen.

CLIMATE CHANGE Sea level rise due to increasing temperature will cause inland migration of mangroves is obstructed due to barriers created by human development. PALM OIL

High risk from

unsustainable

practices like OVER-

FISHING & OVER-

HARVESTING.

PALM OIL PLANTATIONS and RICE PADDIES were responsible for 38% of mangrove loss from 2000 to 2012. COASTAL DEVELOPMENT

Mangroves are cleared to cater the needs of coastal population and tourism through infrastructure, hotels and homes.

> AQUACULTURE has emerged as the fastest growing food sector and is responsible for 35% loss of global mangrove forests.

[1] https://www.mangrovealliance.org/mangrove-forests/

[2] The World's Mangroves 1980 – 2005 (Food and Agriculture Organization of the United Nations)

#### What are the socio-ecological scenarios?



Source: IPBES, 2016

Scenarios are coherent, internally consistent and plausible description of alternative futures, that are neither 'predictions' nor 'forecasts'... (Nakicenovic, 2000).

#### Plausible alternative mangrove future



- Develop spatially-explicit, exploratory, landscape-scale scenarios for island mangroves (for 2050)
- Evaluate the synergies and trade-offs in vital mangrove ecosystem services

## Methodology





# Thank you for your attention.

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